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ABSTRACT

The following are sketched in outline form: (1) functional antecedents and their implications for language--assimilation, accommodation, circular reactions/ feedback processes, classification, discrimination, functional equivalence, representation, transformation, communications; (2) semantic antecedents and their implications for language--human beings, objects, qualifiers, causality, space and time, expressive, directive and referential categories; and (3) structural antecedents and their implications for language--elementary and complex schemas. Nonverbal and vocal/verbal evidence is given for each principle listed under the three topics. [Not available in hard copy due to marginal legibility of original document.] (KM)

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COGNITIVE DEVELOPMENT AS EXPLORED BY PIAGET AND ITS IMPACT ON LANGUAGE DEVELOPMENT.

Paper presented

at the

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PIAGETIAN THEORY AND ITS IMPLICATIONS FOR

THE HELPING PROFESSIONS

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1. FUNCTIONS, ANTECEDENTS AND THEIR IMPLICATIONS FOR LANGUAGE:

Principle	Overall Behavior	Vocal/Verbal Behavior
Assimilation	Incorporating objective reality into schemas.	Idiosyncratic aspects of verbal behavior; pronunciation, conversions meaning.
1. Exercising A.	Reflex actions; 1. stage of sensory-motor period	Reacts to adult language with sounds from his own babbling repertoire; earliest forms of babbling.
2. Coordinat. A.	Combination of sight and prehension.	Reacts to a wide variety of sounds with babbling; recognizes mother's voice.
3. Recognitory A.	Motor recognition.	Greets familiar objects with babbling; enjoys 'babble-dialogues.'
4. Reproductive A.	Repetition of motor acts.	Repetition of sound and verbal productions; monologues babbling, word play.
Accommodation	Changing schemas to fit objective reality.	Learning the rules of language; phonemes, pronunciation, concepts, grammar.
Circular Reactions/ Primary Processes	Affecting environment and adapting to external stimuli.	Vocal/verbal activity and reactivity to feedback; 'babble-dialogues,' mother-child conversation.
1. Primary C.R.	Repetition of acts for the sake of repetition.	Babbling/speaking without communicative intent; babbling in the crib, 'monologues' of child.
2. Secondary C.R.	Repetition with attention to results.	Vocal play with interest in sound forms; babbling is influenced by adult feedback.
3. Tertiary C.R.	Repetition with variation	Intentional variation in vocal activity; later stages of babbling, 'Language in the Crib' (Weir, 1962).
Classification/ Mental Schemata	Practical or sensory-motor conceptualizations.	All words besides proper names, word classes: nouns, verbs, etc. Plmt + open class.
Discrimination	Terms of accommodation, recognitory assimilation	Specific reaction to sound complexes; words, tone of voice; acquisition of phonemes, recognition of mother's voice.
Conscious Awareness	Generalizing assimilation, sociopersonal assimilation. Motor recognition, 'extensive definitions' of reading.	Vocal/verbal expression of needs, understanding signal-value of voice, forming of word classes; knows mother's voice "means" feeding, meaningful use of words, class of nouns, etc.
Representation	Imitation, play, pretending.	'Calling'-function of crying, acquisition of semiotic function; meaningful cry or sounds, onomatopoetic words, adult vocabulary.

1. Continued.

Principle	Nonverbal Behavior	Vocal/Verbal Behavior
Transformations:	Size and form constancies, evolving adaptive to spatial exigencies, flexible coordination of secondary schemas.	Deep structure or kernel sentences, transformations leading to surface structure. Transformations from active to passive, to questions, etc.
Communications:	Information exchange with environment.	Vocal/gestural exchange with other persons.
a) Alimony:	Information intake - accommodation.	Acquiring meaning to previous structure of language. Referential use of language.
b) Efficacy:	Affecting the environment - accommodation.	Inducing adults to use baby talk, directive use of language.

The numbered items are arranged approximately in developmental sequence. Item one being the most primordial and elementary. In several instances no final evidence concerning the exact developmental sequence exists.

II. SEMANTIC ANTECEDENTS AND THEIR IMPLICATIONS FOR LANGUAGE:

...primacy of meaning: Meaning precedes objects in perception, is based upon instinctual/inborn relationship with the social and objective environment and expressed partly in inborn reflexes and emotional reactions. During the sensorimotor stage meaning becomes more differentiated: Object concept, distinction between humans and objects, concept of space, time, and causality. All three based upon sensory-motor interactions with the environment. Interactions lead to a concept of 'activity,' which is later expressed generally in verbs. 'Recognitory assimilation' as evidence of meaning. Meaning is the basis of verbal communication, as language is only a code for the transmission of meaning.

Specific Concepts:

Principle	Nonverbal Evidence	Vocal/Verbal Evidence
1. Human Beings	Meaningfulness partly inborn in the form of the sucking reflex, rooting reflex towards nipple. Visual preference for the pattern of the human face; recognition of parents, recognitory smile upon recognition of parents.	"Dada," "Mama," proper names.
2. Object Concept	Searching for vanished object, return to temporarily abandoned object.	Pointing with sound production, nouns, pronouns.
3. Qualities	Basis for accommodation to various characteristics of objects; recognitory assimilation; understanding of constancy of object in spite of changing appearance.	Intonations, exclamations, adjectives, possessive pronouns.
4. Causality	Efficacy and phenomenal development of means-ends sequences (at.4), other people seen as causal centers (at.5), inference of cause from effect (at.6).	Causes expressed mainly through verb in the beginning; later verb-object or subject-verb-object; prepositional phrases.
5. Space and Time	Fractional, subjective, and objective space; before-after in action-result sequence; from subjective to objective temporal series; seriation of events.	Spatial and temporal adverbs, prepositional phrases.

12. Continued.

Schedule	Nonverbal Evidence	Vocal Verbal Evidence
General Categories:		
1. Expressive	Vocal, facial, gestural expression of (feeling) becoming diversified.	Change in form of crying; intonation, adjectives, exclamations.
2. Directive	Means-ends sequences with intentionality; demands in form of crying or pointing.	Demand crying, whining, intonation, verbal imperatives "gimme"; possessive pronouns "mine."
3. Referential	Recognitory assimilation, contemplative recognition, "ostensive definition" = pointing.	Vocabulary increasing rapidly.
Multiple channels for the expression of meanings	Crying, facial expression, gestures, large variety of nonverbal symbols.	Types of crying, paralinguistic phenomena of communication, accompaniment of language with gestures, verbal communication.

III. STRUCTURAL ANTECEDENTS AND THEIR MANIFESTATION FOR LANGUAGE:

Principle	Nonverbal Evidence	Vocal Verbal Evidence
Schemas	Reflex schemas and their change through accommodation; schemas are interiorized coordinating or transformational actions; schemas as cognitive structures, an organized disposition, mobile frames successively applied to various contents; accommodate to things (adapt and change their structure to fit reality while assimilating them.	Babbling-reduplicated syllables. Interiorized rules of language; language rules are cognitive structures, which are flexible and can be applied to many contents; partial distortion of reality through language frame.
	Schemas are forever extending their field of application so as to assimilate new and different objects.	Enlarging vocabulary of child and 'generativity' of language.
	Schemas undergo internal differentiation.	Holophrases differentiated into more-word sentences.
	Characteristics of schemas: 1. Repetition 2. Generalization 3. Differentiation-recognition	 Babbling patterns, word games. Sentence frame generalized. Basis of communication.
	Coordination of schemas and their application to new situations between 8 & 12 mos.	Coordination of verbs into more-word sentences; 'generativity' of language between 18 & 24 months.
Elementary Schemas	Reflexes, perceptual schemas at birth; Developing into action schemas Developing into recognition schemas	Crying patterns, recognitory babbling. Verbs Nouns, pronouns.
Complex Schemas	Complete act Operation + Object Action - Object Object - Object (relationship in space) Qualifier - Object Agent - Action Agent - Action - Object Coordination of schemas Orienting reflex or exploration Recognition Awareness of being the recipient of an action	Sentence; holophrasis or more-word sentence. Pivot - open construction. Verb - noun construction. Noun - noun construction. Adjective (possessive pronoun) - noun construction. Noun (pronoun) - verb construction. Noun (pronoun) - verb - noun pronoun construction. Coordination and subordination of clauses. Question. Affirmative sentence "It is a ..." Passive sentence.

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